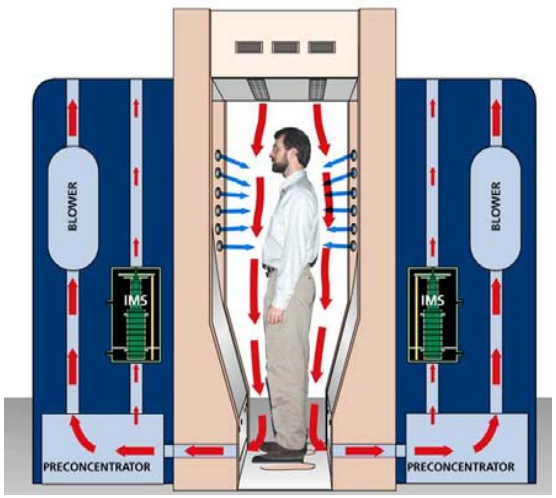
Surface and Microanalysis for Trace Explosive Particle Detection

Collaboration between NIST and the TSA Trace Explosives Group with input from the Contraband Detection Technology Group at Sandia National Laboratory.

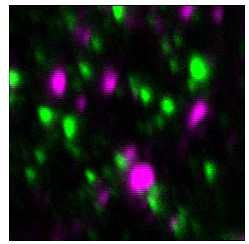
Goal: Use advanced surface analysis tools at NIST to study the performance characteristics of trace explosive detection portals. Improve sensitivity, collection efficiency and operational reliability.

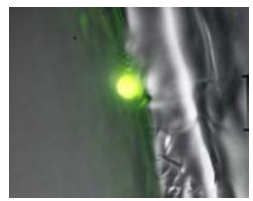


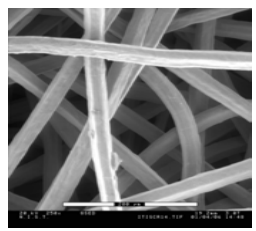
Trace Explosive Detection Portal

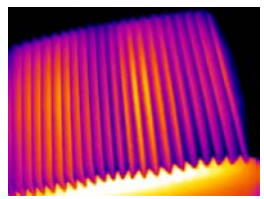
Projects:

- **Identification and counting of high explosive particles by cluster SIMS.**
- **Particle collection/release efficiency using fluorescent polystyrene spheres.**
- **Temperature programmed desorption of particles.**
- **Characterization of surface coatings on collector surfaces.**
- **Explosive particle standards**
- **TPD GC-IMS/GC-MS**









NIST
National Institute of Standards and Technology
Technology Administration, U.S. Department of Commerce

Surface and Microanalysis for Trace Explosive Particle Detection

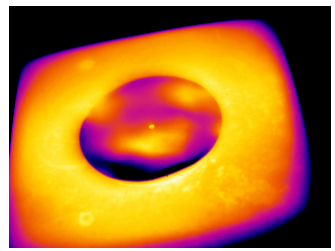
Collaboration between NIST and the TSA Trace Explosives Group with input from major trace detection instrument companies.

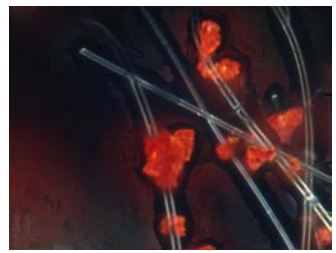
Goal: Use advanced surface analysis tools at NIST to study the performance characteristics of trace explosive detection instruments.

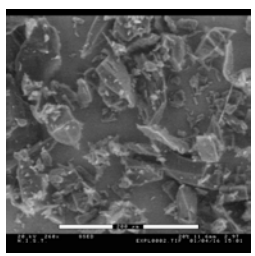
Tabletop Trace Explosive Detection Unit

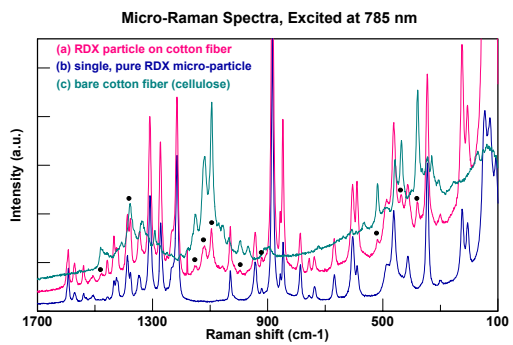
Projects:

- **Particle collection efficiency on swipes using fluorescent polystyrene spheres.**
- **Thermal desorption behavior of individual particles.**
- **Thermal imaging microscopy**
- **Explosive particle standards**









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